

What is Claimed is:

1 1. A mobile-service switching center comprising:

2 determining section for determining whether a call request
3 is a call from a first multical communication mode supporting
4 terminal which is capable of supporting a plurality of calls
5 at a time or from a single-call communication mode supporting
6 terminal which is capable of supporting only a single call at
7 a time;

8 event detecting section for detecting event caused by a
9 handover occurrence or fluctuation of congesting state; and

10 call-number changing section capable of changing the
11 number of continuing calls of the first multical communication
12 mode supporting terminal which is determined by the determining
13 section, when an event is detected by the event detecting section
14 detects any event during the communication.

1 2. A mobile-service switching center according to claim 1,
2 wherein the call-number changing section comprises:

3 special message notifying section capable of transmitting
4 a special message having inserted therein the number of calls
5 changing information regarding the increases and decreases of
6 the plurality of calls, to a base station controller for
7 controlling a base station and the first multical communication
8 mode supporting terminal;

9 reply receiving section for receiving a reply regarding
10 a desired call to continue which is selected by the first multical

11 communication mode supporting terminal from the plurality of
12 calls which are notified by the special message notifying
13 section; and

14 handover rearranging section for rearranging the
15 connection status in such a manner that the desired call to
16 continue which is designated in the reply received by the reply
17 receiving section is maintained and an undesired call which is
18 not selected by the first multicall communication mode supporting
19 terminal is disconnected.

1 ~~3.~~ A mobile-service switching center apparatus according to
2 claim 1, wherein the call-number changing section comprises:

3 call selecting section for selecting a call to be
4 disconnected from the plurality of calls under communication
5 based on a predetermined condition;

6 call disconnect notifying section for transmitting a call
7 disconnect message to the first multicall communication mode
8 supporting terminal corresponding to the disconnected call
9 selected by the call selecting section;

10 reply receiving section capable of receiving a reply
11 regarding a desired call to continue selected by the first
12 multicall communication mode supporting terminal which received
13 the disconnect message from the call disconnect notifying
14 section; and

15 handover rearranging section for maintaining connection
16 corresponding to the desired call to continue which is designated
17 by the reply received by the reply receiving section and

18 disconnect an undesired call to continue selected from the
19 plurality of calls by the first multicall communication mode
20 supporting terminal.

1 4. A mobile-service switching center according to claim 3,
2 wherein the call selecting section comprises:
3 priority data holding section for giving priority data
4 to the calls under communication and holding the priority data;
5 and
6 output section for outputting the data designating the
7 call to be disconnected based on the priority data held by the
8 priority data holding section when connection service
9 restriction deriving from the event is relaxed.

1 5. A mobile-service switching center according to claim 3,
2 wherein the call selecting section is arranged to disconnect
3 based on information regarding priority of call contained in
4 a predetermined region of the call disconnect message.

1 6. A mobile-service switching center according to claim 3,
2 wherein the call selecting section is arranged to select a call
3 based on information contained in the subscriber's data which
4 is sent from a home location register to a visitor location
5 register.

1 7. A mobile-service switching center according to claim 3,
2 wherein the call selecting section is arranged to disconnect

3 based on a selecting algorism prepared for each subscriber.

1 8. A mobile-service switching center apparatus according to
2 claim 7, wherein the selecting algorism is arranged based on
3 the priority which is determined in accordance with the
4 connection sequence of a plurality of calls under communication.

1 9. A mobile-service switching center apparatus according to
2 claim 7, wherein the selecting algorism is arranged based on
3 quality of service data indicative of the grade of a transmitted
4 signal, and the call selecting section selects a call to continue
5 in accordance with the selecting algorism.

1 10. A mobile-service switching center apparatus according to
2 claim 2, wherein the call-number changing information is arranged
3 to make the first multicall communication mode supporting
4 terminal emanate an alarming sound changing step by step so as
5 to correspond to the status taken by the call-number changing
6 information.

1 ~~11~~. A base station controller comprising:

2 holding section capable of holding a plurality of calls
3 communicating with each of base stations located near the base
4 station controller at a time;

5 detecting section for detecting at least a status that
6 a handover is requested and determining a status that all of
7 the calls held by the holding section cannot be handled upon

8 handover in the multicall communication mode based on the number
9 of calls held by the holding section;

10 notifying section for transmitting a special message
11 regarding the number of calls allowable to continue to the
12 multicall communication mode supporting terminal which has
13 generated a handover request detected by the detecting section;

14 reply receiving section capable of receiving a reply
15 designating a desired call to continue which the multicall
16 communication mode supporting terminal selects from the
17 plurality of calls notified by the notifying section; and

18 transmitting section for transmitting data indicative of
19 the desired call to continue which is designated by the message
20 received by the reply receiving section, to a mobile-service
21 switching center.

1 ~~12.~~ A multicall communication mode supporting terminal
2 comprising:

3 receiving section for receiving a special message
4 regarding the increases and decreases of a plurality of calls
5 and extracting call-number change information from the special
6 message;

7 presenting section for displaying the plurality of calls
8 under communication which is identified by the call-number
9 changing information extracted by the receiving section, to the
10 user of the multicall communication mode supporting terminal
11 in a visual manner or an audible manner in accordance with the
12 call-number change information extracted by the receiving

13 section;

14 input section arranged to permit the user of the multicall
15 communication mode supporting terminal to carry out input
16 operation for selecting a desired call to continue from the
17 plurality of calls presented by the presenting section; and

18 transmitting section for transmitting information
19 regarding the desired call to continue which is selected by the
20 input section to a corresponding base station.

1 ~~13.~~ A method of changing the number of calls in a multicall
2 communication mode for use in a switching center system which
3 comprises a first multicall communication mode supporting
4 terminal for transmitting and receiving a radio signal, a base
5 station controller for controlling a base station, and a
6 mobile-service switching center for transmitting and receiving
7 information regarding a plurality of calls so that a
8 communication status is settled between the first multicall
9 communication mode supporting terminal and the base station
10 controller, the method comprising:

11 a step of detecting an event caused by an occurrence of
12 handover and a fluctuation in congesting state of a network;

13 a step of notifying a special message having inserted
14 therein call-number changing information regarding the
15 increases and decreases of call-numbers to a switching center
16 as a connection destination connected by the handover when the
17 event is detected at the event detecting step;

18 a step of receiving a reply regarding a desired call to

19 continue selected by the first multicall communication mode
20 supporting terminal from the plurality of calls notified by the
21 special message created at the special message notifying step;
22 and

23 a step of rearranging the handover in such a manner that
24 the desired call to continue designated by the reply received
25 at the reply receiving step is maintained in connection and an
26 undesired call to continue, the undesired call is not selected
27 from the plurality of calls by the first multicall communication
28 mode supporting terminal.

1 14. A method of changing the number of calls in a multicall
2 communication mode according to claim 13, wherein the special
3 message notifying step is arranged such that if the
4 mobile-service switching center receives a call request sent
5 from a second multicall communication mode supporting terminal
6 other than the first multicall communication mode supporting
7 terminal, then the mobile-service switching center inserts
8 call-number decreasing information for decreasing the number
9 of calls into the special message, and

10 the handover rearranging step is arranged such that the
11 mobile-service switching center transmits a reply regarding the
12 call request by using a communication line which becomes vacant
13 by disconnecting the undesired call to continue designated at
14 the special message notifying step.

1 15. A method of changing the number of calls in a multicall

2 communication mode according to claim 13, wherein the special
3 message notifying step is arranged to comprise:

4 a step of notifying the base station controller of
5 information regarding the base station controller as a connection
6 destination to be connected by the handover to the base station
7 controller upon transmitting a special message;

8 a step of receiving call-number changing information
9 regarding the number of calls allowable to the call-number
10 changing information transmitted from the base station
11 controller as a connection destination notified at the base
12 station controller notifying step; and

13 a step of transmitting the call-number changing
14 information which is received at the call-number changing
15 information receiving step, to the first multicall mode
16 supporting terminal.

1 ~~16.~~ A method of changing the number of calls in a multicall
2 communication mode for use in a switching system which comprises
3 a first multicall communication mode supporting terminal for
4 transmitting and receiving a radio signal, a base station
5 controller for controlling a base station, and a mobile-service
6 switching center for transmitting and receiving information
7 regarding a plurality of calls so that a communication status
8 is settled between the first multicall communication mode
9 supporting terminal and the base station controller, the method
10 comprising:

11 a first transmitting step for transmitting a handover

12 request from the mobile-service switching center to a
13 mobile-service switching center as a connection destination to
14 be connected by the handover;

15 a second transmitting step for transmitting a message
16 containing data indicative of a number of calls allowable to
17 continue based on the capacity and the congesting state of the
18 mobile-service switching center as a connection destination,
19 the message is transmitted from the mobile-service switching
20 center as a connection destination at the first transmitting
21 step; and

22 a call-number notifying step for transmitting a message
23 indicative of an additional number of calls allowable to continue
24 from the mobile-service switching center to the first multicall
25 communication mode supporting terminal, if the number of calls,
26 the number is contained in the message sent at the second
27 transmitting step, allowable to continue is larger than the
28 current number of calls supported by the first multicall
29 communication mode supporting terminal.

1 17. A method of changing the number of calls in a multicall
2 communication mode according to claim 16, wherein the call-number
3 notifying step is arranged such that the mobile-service switching
4 center further transmits a command message to the first multicall
5 communication mode supporting terminal which is obliged to
6 decrease the number of calls to continue so that a connection
7 status is rearranged in accordance with the decreased number
8 of calls allowable to continue.

1 18. A method of changing the number of calls in a multicall
2 communicationmodeaccordingtoclaim16, whereinthe call-number
3 notifyingstepisarrangedsuchthatthemobile-serviceswitching
4 center notifies the first multicall communication mode
5 supporting terminal that the communication channel cannot be
6 changed while maintaining communication status upon the event
7 deriving from the occurrence of the handover and fluctuation
8 of the network congestion state.